1,4-dioxane

CAS 123-91-1

Current North Carolina AAL = 0.56 mg/m^3 (24 hour, chronic toxicant)

AAL Documentation

The late 1980's ACGIH TLV value for 1,4-dioxane was 25 PPM (equivalent to 90 mg/m^3).

A factored TLV approach was used to derive a 24 hour chronic AAL for 1,4-dioxane.

In accordance with guidance provided by the North Carolina Academy of Sciences (1986/1987), the following uncertainty factors were used:

- Population variability : Factor of 10
- Time conversion (8 hour work day to continuous exposure): Factor of 4.
- Experimental uncertainty associated with chronic studies: Factor of 2.
- Severity of effect: Factor of 2 (1,4-dioxane is a skin toxicant and a confirmed animal carcinogen with unknown relevance to humans)

Total multiplicative uncertainty factor = 10 x 4 x 2 x 2 = 160

$$\text{mg/m}^3 \text{ 1,4-dioxane} = \frac{90 \text{ mg/m}^3}{160}$$

$$= 0.56 \text{ mg/m}^3$$

This information has been reconstructed using the decision matrix established by the North Carolina Academy of Sciences Air Toxics Panel, September, 1986.

Final version – May 2013 (NBJ)